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THE STUDY OF DREAMS¹

A METHOD ADAPTED TO THE SEMINARY

By MADISON BENTLEY, University of Illinois

The clinical study of dreams has, in our times, attracted a great deal of attention. By many students of the abnormal it is held to be a valuable aid in the diagnosis of mental disorders. The dream, as interpreted by the clinician, is a residue of early emotions and of old desires which find, in sleep, a deferred and vicarious satisfaction. Whatever the diagnostic import of the dream may be, however, it is clear that the psychologist cannot derive from the clinician's methods of divination a coherent descriptive account of the dreaming mind. If dreams are symptoms and symbols, they are also facts of consciousness, facts which present characteristic constellations, which take their proper courses, and which carry functions different in degree, at least, from those of the normal consciousness of the daytime. This clinical method, then, is not well adapted to the study of the dream considered on its own account.

Within a few years, experiment has notably enlarged our knowledge of the dream, particularly of the immediate dependence of the dream upon stimulus and upon bodily state. The studies of de Sanctis,² Vold,³ Weygandt,⁴ and others have made it evident, in a striking manner, that motive and incident may be supplied to the dream in a great variety of ways through bodily interference. The application of heat and cold, of lights, sounds, odors, pressures, the constraint and disposition of bodily members, and many other means to stimulation of sense organs, may—as we now know—determine or modify both the main contents and the obscurer context of the dream. Such studies as these afford admirable control of the psycho-

¹ Studies in Psychology from the University of Illinois.

² de Sanctis, S., *Die Träume*, Halle, 1901; — and Neyroz, U., *Psych. Rev.*, ix, 1902, 254.

³ Vold, J. M., *III. Internat. Congress f. Psychol.* (1896), 1897; *Ueber den Traum*, Leipzig, i, 1910, ii, 1912.

⁴ Weygandt, W., *Entstehung der Träume*, (Diss.), Leipzig, 1893; *Philos. Stud.*, xx, 1902, 456; *Zeitschr. f. Psychol. u. Physiol. d. Sinnesorg.*, xxxix, 1905, 1.

physical conditions which obtain during sleep. They have, moreover, led to extremely clever modifications of empirical technique. It should be written down to their credit, too, that these experimental essays set a useful check upon the looser divining methods of interpretation, methods which run the risk of personal bias and of doctrinal contamination.⁵

But neither has the method of abrupt initiation and occasional interference given—any more than the diagnostic method—a delineative account of the dream. To this end careful and complete introspection, taken under the best conditions, seems to be the most direct and the most natural means. Various objections,—it is true,—to this direct method have been urged; the impossibility of immediate report, the abnormal state of the sleeper, subsequent amnesia, and the like. The serious attempt to make methodical record of one's own dreams, for psychological ends, suggests, however, that the objections offered to the method strike at difficulties which are not really insuperable.⁶

But not every dreamer's tale is an introspection. Those recitals of the dream which are made for dramatic purposes, or for entertainment, or as a cathartic means of relieving the oppressed mind, have, it must be admitted, no scientific use; and the dream-story, retailed by the psychologist himself, has,

⁵ J. J. Putnam, a believer in the clinical analysis of dreams, speaks of "alleged eccentricities (doubtless sometimes real) in interpretation." *Jour. of Abn. Psych.*, ix, 1914, 36.

⁶ Among recent applications of the introspective method to the investigation of dreams should be mentioned the studies of A. Aall (*Zeitschr. f. Psychol.*, lxx, 1914, 125), F. Hacker (*Arch. f. d. ges. Psychol.*, xxi, 1911, 1) and P. Köhler (*ibid.*, xxiii, 1912, 415; xxvii, 1913, 235). Aall prescribes as the proper method of observation (*subjektive Reflexionsmethode*) the careful, immediate and unbiased reproduction of the dream by a trained observer, in a quiet dream-like state, with a critical survey of the antecedent waking conditions (p. 126). Hacker, who observed systematically for nearly a year and a half, lays emphasis upon the necessity for (1) immediate transcription and (2) exact and searching analysis and description of the dream-consciousness (pp. 2ff). At the suggestion of Professor Külpe, H. made a special study of thought in dreams. Köhler's observations were based upon about 600 dream-records. He profited by the fact that he is accustomed to waken "twice every night,—rarely three times," by setting down the records during the waking periods of $\frac{1}{2}$ -1 $\frac{1}{2}$ hours. Both K. and H. give curves for depth-of-sleep (Michelson's auditory method). These three studies mark a notable advancement in method over older studies. Our own work differs from them chiefly in its subdivision of the task and in the more elaborate fractionation of the introspections.—The possibilities of combining clinical and analytical motives in the study of the dream are illustrated by the article of E. R. Thompson (*Brit. Jour. of Psych.*, vii, 1914, 300), which was inspired by Freud's *Die Traumdeutung*.

if it is taken as it stands, only a qualified value in description. The recital, though it be given accurately and faithfully, is no more and no less introspective than the account of a ball-game or an enumeration of observed paintings in a gallery. It differs from these only in the extent to which the events detailed are controlled by external or by organic conditions. Like them, it furnishes only gross "information," the raw material from which introspective descriptions have carefully to be separated.

In part, the allurements of the dream-consciousness itself, and in part the possibilities it offers for introspective training led us to choose (in the spring of 1914) the subject of dreams as a topic for the seminary. After historical summaries of the literature, from Aristotle to Freud, had been brought in and discussed, as many members as found the task feasible began the nightly quest for dream materials.

The conditions of the quest were made as follows. In the hand of each observer was placed a copy of the outline reproduced upon the opposite page (Table I). Simplified copies (one for the record of each dream), which contained spaces to be filled in by the observer, were also distributed before the work began. At the same time the Obs. was supplied with candles, matches, pencil, blank paper, an alarm clock, and a sealed schedule of hours of waking made out for the following fortnight. Upon retiring at night the alarm was set, without O's knowledge, according to the schedule; and the necessary materials were placed within reach of his hand. The schedule of hours was so chosen, by a person not an observer, that the waking-signals should ring as if by chance with an equal distribution throughout the period of sleep. Only one arousal was arranged for in any single night. Upon a given evening, then, O knew only that the alarm was to sound at some time before his normal hour for waking. The length and violence of the signal were adjusted by a preliminary practice to the needs of the individual. Thus one Obs. would require only a muffled tap of the bell, while another awakened at the end of a long din released close to his ear. The Obs. was cautioned to begin his record only after he had accustomed himself to a quiet arousal at the alarum. He was instructed to take the introspective attitude (without moving and with eyes still closed)⁷ and to wait passively for the resurgence or the *Abklingen* of the dream.⁸

If no dream was at hand, the Obs. recorded the fact, together with the hour, and returned to his slumbers. If a dream appeared, he

⁷ P. Köhler, (*Arch. f. ges. Psychol.*, xxiii, 1912, 417) also noticed that the dream tends to disappear under bodily movement.

⁸ In 1893 M. W. Calkins made a statistical study of nearly 400 dreams of two Obs. (*Amer. Jour. of Psych.*, v, 1893, 311). In this study the alarm clock was at first used, but soon discarded, the Obs. trusting to accident to rouse him from sleep after dreaming. The method seems to have been suggested to Professor Calkins by J. Nelson (*ibid.*, i, 1888, 381ff.). It is traceable to L. F. A. Maury (*Le sommeil et les rêves*, Paris, 4th ed., 1878, 2ff.), who engaged a person to arouse him during the night. For a full discussion of the method see Foucault, M., *Le rêve*, Paris, 1906, 9ff.

was to trace its main features, then to light his candle, set the dream down photographically (sect. I, 1, in Table I), and fill in under the other rubrics as much as could not safely be left to the next day. Upon waking in the morning, the rest of the record was filled out. At our meetings, held fortnightly, the individual records were brought in, together with a summarized report made out upon a blank form which was supplied for the purpose.⁹

TABLE I

<i>Obs</i>	<i>Date</i>	<i>Time</i> {	<i>Bed</i>
			<i>Asleep</i>
			<i>Aroused</i>
General psychophysical condition		Remarks	
I.	1) Recital: D. events given in order		
II.	2) Description: translation into process-terms (including simple feelings and attitudes)		
	3) Temporal continuity and sequence (or absence)		
	4) Associative formations {	Assimilation	
		Free images	
		Discursive A	
		Topical A	
	5) Configuration {	Foreground, background	
		Broad, narrow, deep, shallow	
		Degrees of clearness	
		Sustained or fluctuating attention	
		Primary, secondary or derived-primary attention	
	6) Mental functions {	Perception, ideation, memory, imagination	
		Volition, emotion, sentiment, recognition	
		Thought	
		(or apprehensive, executive and elaborative)	
III.	7) Waking residue of D. {	Mental	
		Bodily	
IV.	8) Persons {	Known	
		Unknown	
		And Scenes {	
		Recent	
		Remote	
V.	9) Relevant bodily and external events during sleep (e.g., pain, cramp, muscular tension, fatigue, light, cold, sound)		
VI.	10) Reference to past events: waking events, concerns, interests, fears and desires		
		Evening before	
		Day before	
		Earlier	
	11) Reference to character, temperament, ideals, principles, individual traits		
VII.	12) Gross comparison with waking consciousness {	Likenesses	
		Differences	
	(e.g., processes, coherence, rate, attention, shift of function, types of association)		

⁹ The department is prepared to furnish mimeographed copies of the outline and of the blanks to psychologists who will undertake to collect additional material.

It was not to be expected that each dream would furnish exhaustive materials under each of the twelve headings; instead we hoped to supply, by a kind of fractionation, from one record what was wanting to another. Our chief modifications of the method were (1) the equal and predetermined distribution of arousals throughout the night, (2) the separation of the dream-recital from the introspective description, (3) analysis, by headings, of the introspections, and (4) the giving of instructions which should define and limit the task or *Aufgabe*.¹⁰

Results.

I. *The Dream and the Sleeping Period.* Since the alarm-signals were distributed with approximate regularity throughout the night, it is possible to make out the relation of dreams to the course of the sleeping period. The signals for waking were arranged to fall on the half-hours, the earliest at 11:30 and the latest at 5:30. The limits were so chosen as to fall within the borders of the customary sleeping period of the observers.¹¹ If dreams were equally frequent throughout the night and if circumstances for their waking revival were the same from hour to hour, then we should expect to find a like number of dream-records upon each of the signal-hours. Experiments made upon the depth of sleep¹² and dream-records previously published¹³ alike lead us, however, to anticipate an unequal distribution. The following Table (II) indicates that most dreams appeared, for our observers, after the second hour of sleep was finished. Only one dream is recorded earlier than two and three-quarters hours after the initiation of sleep. This dream comes from the writer's record and it was noted as a "mere ghost," almost entirely wanting in describable contents. The totals for the whole group of five persons, running from hour to hour, stand as follows:

¹⁰ The essential difference obtaining between the clinical method and the method here proposed will be made evident by a comparison of our Table I with the "dream analysis records" recently published by L. H. Horton (*Jour. of Abn. Psych.*, viii, 1914, 393).

¹¹ It occasionally happened, of course, that the Obs. was awake at the time of the alarm; but such exceptions were noted.

¹² Michelson, E., (Diss.) Dorpat, 1891, and *Psych. Arbeiten*, ii, 1899, 84 (Michelson cites the work of Kohlschütter, and of Mönninghoff and Piesbergen); Herrwagen, F., *Philos. Stud.*, v, 1889, 301; Sanctis, S. de, and Neyroz, U., *op. cit.*

¹³ Calkins, M. W., *op. cit.*; Weed, S. C., and Hallam, F. M., *Amer. Jour. of Psych.*, vii, 1895, 405; Monroe, W. S., *Jour. of Philos. Psych. and S. M.*, ii, 1905, 650; Spiller, G., *The Mind of Man*, 1902, 430ff.

TABLE II

Hour of Sleep 0-1.....	0
“ “ “ 1-2.....	1
“ “ “ 2-3.....	1
“ “ “ 3-4.....	4
“ “ “ 4-5.....	12
“ “ “ 5-6.....	9
“ “ “ 6-7.....	12
“ “ “ 7-8.....	5
Total ¹⁴	44

As regards the small number of dreams recorded for the early hours, there are three possible explanations: (1) The early alarm failed to waken the sleeper, (2) the condition of the Obs. was unfavorable to the discovery of dreams (*e. g.*, on account of the great depth of sleep), and (3) early dreams were actually infrequent. Let us examine the possibilities. Obs. C was aroused only once from 19 alarm signals falling within hours 0-3, and only three times from 25 alarm-signals within hours 3-5. No one of these arousals gave a dream, whereas the 11 arousals in hours 5-7 gave five dreams. Out of 84 signals (Feb. 21-May 22), Obs. A failed to hear only 9, and of these 3, or, possibly 4, fell within the hours 0-3. This Obs. reported a single dream within the first three hours of sleep, out of 13 dreams in all. The other three Obs., for whom data are not quite complete, also returned a number of early dreams disproportionately small for the frequency of arousal. The result accords with unpublished records of the writer, in which a long period of alarm-clock dreams (above 40) gave only blanks or traces for the first two hours of sleep. As regards the second possibility,—loss of early dreams by conditions unfavorable to their recovery,—the records do undoubtedly indicate that the sleeper is apt to be especially stupid and soporose when awakened early in the night. In spite of this fact, however, we were, even while somnolent, clearly aware of the task and we were likewise able to follow the instructions carried over from the evening before. It seems fairly evident, then, that although the early hours of sleep are unfavorable both to arousal and to the introspective attitude, these unfavorable conditions do not fully account for the want of dreams at this time. The absence of dreams is presumably to be referred to the extreme modification of bodily functions incident to deep sleep. It is still arguable, of course, that this extreme modification destroys the incentives to reproduction

¹⁴ Each arousal with a dream is counted as one, although two or more dreams were sometimes reported at the same time.

and produces complete amnesia. The presence of the definite *Aufgabe* to recall makes improbable this assumption, however, which seems, in spite of its frequent support in the literature, to stand in want of positive evidence.¹⁵

II. *Contents, Course, Configuration and Functions of the Dream* (Sect. II in Table I). We may begin with the processes which make up our 54 dreams. Table III gives the introspective analysis in terms of sensory and affective contents and of attitudes.

TABLE III¹⁶

Obs.	No. D's.	Visual		Aud'y		Aud'y-Kin.		Kin.	Tact.	Aff'n		Attitude
		Color	Grey	Repr.	Verb.	Repr.	Verb.			Pl.	Unpl.	
A	15	7	15	1	14	..	1	4	3	7	11	16
B	14	1	16	4	14	..	..	6	2	3	8	4
C	9	1	6	..	5	..	..	4	..	1	5	5
D	4	..	4	2	2	..	1	4	..	3	1	7
E	12	2	7	2	7	2	..	1	..	..	2	5
	54	11	48	9	42	2	2	19	5	14	27	37

The frequency of occurrence of sensory and imaginal processes is not especially significant. Our number is too small for statistical treatment.¹⁷ Visual(59) and auditory(51) processes play the chief rôle. Greys(48) are more frequent than colors(11); and verbal auditory(42) processes than tones and noises which are immediately representative of sounding

¹⁵ We leave entirely out of account the period immediately following the initiation of sleep. This period is to be covered by an especial inquiry which will combine experimental control of the hypnagogic state with the present method of arousal and report. Hints at a method are to be found in Ladd, G. T., *Mind*, N. S. i, 1892, 299; Müller, J., *Ueber die phantastischen Gesichterscheinungen*, 1826, 49; Weygandt, W. E., *Philos. Stud.*, xx, 1902, 464; Vold, J. M., *III. international. Cong., etc.*, 355; Spiller, G., *op. cit.*, 430.

¹⁶ "Repr" = representative or primary image; "verb" = verbal image; "kin" = kinaesthetic.

¹⁷ Nevertheless the relative frequency of processes from the several sense-modalities stands in substantial agreement with the results of Calkins, M. W., *op. cit.*, 321ff; Weed, S. C., and Hallam, F. M., *op. cit.*, 405ff; Monroe, W. S., *op. cit.*, 650; Hacker, F., *op. cit.*, 16; and Köhler, P., *op. cit.* (1912), 433ff. Thompson, E. R. (*op. cit.*, 305) found among his five subjects a like distribution of imageries in the waking and dreaming consciousnesses. Cf. Beaunis, H., *Amer. Jour. of Psych.*, xiv, 1903, 271.

objects(9). For the most part, the visual materials furnish the scenery of the dream; they provide the perceptual panorama; while verbal processes, in auditory form, carry conversations and give descriptive filling to the events. The infrequency of auditory-kinaesthetic fusions(4) is noticeable. The kinaesthetic elements common to verbal formations in waking life seem to drop out of the dream-words. Kinaesthetic processes, such as were involved in running, opening a door, rubbing objects in the hand, were reported occasionally by all dreamers(19), and in the cases of A and B tactual elements were added. Affection was recorded in 41 cases, unpleasantness about twice as often as pleasantness. The conscious attitudes (*Bewusstseinslagen*) form an important factor in the dream. Most of them bear the aspect of condensed and fore-shortened emotions. They are surprise(7), futile worry(5), familiarity(5), hurry(4), perplexity(3), searching anxiety(2), incongruity, foreboding, expectancy, bewilderment, doubt, apology, distaste, dislike, responsibility, confusion and relief,—in all, 37. It is not unlikely that in waking hours many of these attitudes would have been obviously complex, representing emotive adjustments or moods; but as they stood in the dream they appeared to be elemental. It seems likely therefore that this emotive condensation is especially frequent in the dream-state. In a number of cases, however, the attitude is undoubtedly engendered not by the dream-event, but by the instructions. Thus perplexity, futile worry, and searching anxiety were directly traceable,—at least in some dreams,—to the task of reporting. If they were translated into verbal processes they would appear in such forms as “Does my dream really take this course?” “Can I not recover the true ending of this event?” “Have I recovered all the processes that actually ran their course?” The attitude seems to form a part of the tissue of the dream itself, and not to be introduced from the subsequent period of introspection. This sort of attitude is, as we all know, not limited to the dream. Every introspective psychologist recognizes the attitudes of—“responsibility,” may we not call them?—which derive from, and, in part, *are*, the instructions lying behind or underneath the observation. In fact, every scientific observation which has not become automatized by practice or habit, involves, I suppose, either the “responsibility” attitude or its expanded and elaborated surrogates.

The course of the dream is commonly described as broken, disjointed, and interrupted; as lacking the continuity imported

into our waking life by perceptual and ideational trains and by sustained interests, occupations, and the like. We found, however, different sorts of dreams, among which we were able to distinguish four types as regards temporal course; fragmentary(11), disjunctive(13) (*i.e.*, abrupt changes and turns, without, however, a loss of integrity), and continuous(19) dreams, and finally, successive dreams carrying a common topic(6).

The account of the *associative formations* in the dream is necessarily gross. We sought only to identify the general types of constellation and sequence. Groups of images were, as might have been expected, most frequent. They carry, in large measure, the scenes and the persons of the dream. Psychologists who hold strictly to the peripheral origin of dreams obviously overlook the fact that while a dream may be initiated or turned by external or bodily events and agencies these events and agencies furnish no adequate explanation of the main part of the dream's contents. To say, for example, that a flash of light turned upon the sleeper's eyelids or a breath of cold air blown across his face produces a dream of celestial or of arctic regions is only to mean that the photic or thermal stimulus releases a set of central functions which themselves incorporate the dream.¹⁸ The traditional account of the dream makes it discursive: it is said to pass abruptly from topic to topic and from scene to irrelevant scene. However, our incomplete survey of associative type reveals both discursive dreams(17) and almost as many(13) topical dreams. The term "topical"¹⁹ does not indeed imply that dream-topics

¹⁸ Even in the hypnagogic or initial dream where the organism is still, to some extent, *en rapport* with environmental events it is easy to over-estimate the part played by stimulus. Cf. Ladd's clever explanation of early visual dreams in terms of retinal figures (*op. cit.*). The peripheral or sensory origin of dreams is frequently urged in the literature. The only empirical basis for the theory seems to rest upon the observation that *some* dreams are touched off or turned in their course by stimulus. Hacker (*op. cit.*, 97) credits Purkinje,—as I think wrongly,—with a sensational theory of dreams. Purkinje distinguished sensory, associative, and "complete" dreams. In the last-named "sind alle Seelenvermögen . . . repräsentirt." "Wenn auch der Traum sein sinnliches Material nicht anders woher, als aus dem wachen Leben nehmen kann, so leidet doch dadurch die Freiheit des innern Subjects mit allen seinen geistigen Anlagen keine wesentliche Beschränkung." R. Wagner's *Handwörterbuch der Physiologie*, u. s. w., III.² 1846, 452, 456.

¹⁹ See Ebbinghaus, H., *Grundzüge d. Psychol.*, 2nd ed., i, 1905, 694.

were effectively or even sanely treated; but rather that the associative lines ran from persistent topical centres.

The following Table (IV) gives our results for *Configuration and State*. The first three headings indicate the degree of clearness of the dream taken as a whole; the second three the presence of foreground only, of background only, or of both. Wanting a like description of similar total consciousnesses in the waking state, these figures are not very significant. Moreover, the introspections are difficult and they need highly

TABLE IV

Clear	Unclear	Very obscure	Foreground	Background	Fore- and Background
25	9	5	8	15	23

trained observers, for there is danger of confusing memorial fading with primary obscurity. But anyone who is accustomed to introspective work upon attention is able properly to instruct himself for the dream-task. The results may be taken to indicate, at least, that the obscure processes play a greater part in the dream than in waking life. As regards the type of attention, our observers brought in 36 instances of primary and six of secondary or "voluntary" attention. The latter referred to problems of action and of thought.²¹

Wanting a classification or even a catalogue of *mental functions* to serve the purposes of current psychology it was not easy to formulate our instructions under this heading. The seminary contented itself with the use of the gross traditional terms, first coming to an understanding of its own interpretation of them. The topic needs a separate inquiry of its own. The distribution of functions in our reports follows:

TABLE V

Perception	Action	Emotion	Imagination	Aesthetic Sentiments	Thought
48	2	39	1	4	5

Hacker refers the rapid shifts and turns of the dream to the want of determining tendencies, and the bizarre combination of ideas to the fact that the processes tend, as they accumulate in a constellation, to annex subsequent processes which would have fallen, in the waking consciousness, into quite different integrations. On the other hand, Köhler believes that determining tendencies underlay a number of his dreams (*op. cit.*, 1912, 482).

²¹ *e. g.*, Obs. A: "Secondary attention occurred when I was listening to the reading of a letter, when I was trying to perform an experiment with rats in spite of numerous distractions, and when I was taking part in an argument."

The term "perception" stands first. Were it not for the frequent confusion among psychologists of perceptual and memorial functions, it would hardly be necessary to explain that "perception" as here used refers neither to the actual presence of objects nor to the adjustment of the organism to its environment. It is a purely mental function and it stands for the apprehension of persons and things, without enquiring whether the persons and things are actually and really *present*. With such an epistemological question the perceiving consciousness has nothing to do. On the other hand, "memory" was taken to mean, not that the previous experience was found by inference to furnish dream materials, but that the dreaming consciousness made direct and explicit reference to a "past" which was distinguished, *within the dream*, from the perceptual or ideational or emotional "present." The term "imagination" is to be taken in the same strict sense. There were no authenticated cases of memory in our dreams,²² and only one of imagination.²³

The discrepancy between the number of dreams with perceptions(48) and the total number recorded(54) calls for explanation. To many the dream is just a perceptual panorama. We found several dreams, however, without "scenery" and without events. One was made up of an attitude of expectancy, another was anxious waiting, and a third was "a vague struggle to formulate some such thing as a rule." It seems likely that in dreams of this kind the only conscious processes carried in sleep are those processes which bear the instructions from the preceding day. Such shreds of consciousness may possibly be responsible for the predetermined waking of persons who "set" themselves for early arousal.

Unlike the attitudes, the *dream-emotions* were seldom referable to instructions. They sprang instead from total situations or scenes, and they include embarrassment(7), fear(7), anger(6), resentment(3), wounded feelings, loneliness, vexation,

²² Calkins (*op. cit.*, p. 324) reports several cases of dream-memory. However, the context does not make it quite clear that the memorial reference was, in these cases, within the dream-consciousness. The same thing may be said of Köhler's "memories" and "imagination" which he found in 1/5 of all his dreams. They seem to differ from other ideational processes, not in function, but in attributes; they are, as K. explains, less vivid and corporeal, more indeterminate and fleeting, and less definitely localized (*op. cit.*, 1912, 438).

²³ The only instance was reported by A: "A sort of living Greek frieze. I imagined it and did not really perceive it."

annoyance, mild joy, sorrow, indignation and remorse; nearly all of them unpleasantly toned.²⁴ Although *action* played a small part in the dream consciousness, as the recitals abundantly testify, it seemed probable to us, at the end, that we had at times overlooked obscure processes concerned with such automatized and habituated actions as walking, grasping objects, and changing bodily position. It remains true, however, that such a thing as an "action-consciousness," a constellation of clear and dark processes preceding and accompanying organic movement was, in our dreams, exceedingly rare. This fact may be connected directly or indirectly with the general motor quiescence of the body.

III. *External and Historical References of the Dream* III(7), IV(8), V(9), VI(10). The immediate residues of the dream were surprisingly scanty. Four times the observers noted a haunting effect left upon the subsequent waking consciousness and nine times bodily disturbances (such as trembling from fear) were referable backward to the dream-state. The psychophysical residues of dreams seem to be much more prominent in those impressive morning dreams which we carry over into the active affairs of the day. Of the many *persons* who appeared in our dreams, we recognized 64 in the recital, while 45 were unknown. Besides, there were frequently supernumerary figures who were massed in the background and observed neither as strangers nor as acquaintances. Of the *scenes*, 14 were familiar and 44 were unfamiliar. The unfamiliar, however, revealed at times glimpses of recognizable places. Of the dream items (persons, places, scenes, events, etc.), 37 were reminiscent of waking occurrences of the previous evening, 20 seemed to have been derived from the day preceding, and 24 from earlier waking experiences. It is probable that a stricter search would have shown recent revivals also of the earlier experiences. The obvious reference to an earlier event tends to make the observer disregard a more re-

²⁴ This result agrees with Calkins (*op. cit.*, p. 327), whose list of emotions displays a remarkably close resemblance to ours. In 3 of the 4 observers of Weed and Hallam (*op. cit.*, p. 409), unpleasant dreams were much more frequent than pleasant. Weygandt (*Philos. Stud.*, xx, 1902, 488), refers the preponderance of unpleasantness in dreams partly to unfulfilled wishes and partly to such organic stimuli as hunger, thirst, and labored breathing. Most of our emotive unpleasantnesses, however, were connected with ideational constellations.

cent revival which has set the older experience in *Bereitschaft*.²⁵ The writer has succeeded by persistent effort in tracing all the items of an elaborate dream to the waking consciousness of the preceding day and evening.²⁶ He inclines to the belief that the primary and chief incentive to reproduction in dreams is furnished by recent cortical functions and that the bizarre and novel character of the dream is owing to the fact that bits are torn from the most diverse interests and topics of the preceding day and composed in a single scene. In spite of this strange conglomeration of items drawn from many sources, however, the dream not infrequently reflects the "personality" of the dreamer; that is to say, his temperament, traits, persistent interests, ethical and social principles, color and temper the dream. Thus A recognizes himself in a tendency to be tardy at appointments, in the wish to work alone, in the dislike of disorder, in sensitiveness to opinion, in contempt for prying persons, in psychological interests, in obstinacy; B finds a fixed habit to economize, a tendency to bashfulness, anxious responsibility for his work, and irritation under criticism. E shrinks from public display, enjoys self-commiseration and is inclined to worry over public engagements. Thus it appears that the dream, although it may be trivial when judged by the day's standards, and although it may be largely occupied with perceptual functions set up by small events of the preceding hours, nevertheless runs in old grooves and is, in part, fashioned by determining tendencies at least as old as the individual dreamer.

Upon the *differences observable between the dream and the waking mind* it is easy to follow the irresponsible judgment of the lay-dreamer and so to generalize. We are told that "people" do not think in dreams, that dreams are wholly irrational, that incongruities are not recognized, that dreams do not pursue a given topic, and what not. In our own intro-

²⁵ *E. g.*, the dream-death of an acquaintance of earlier years due to a funeral procession witnessed the day before the dream occurred. Cf. Spiller, G. (*op. cit.*, 449-450) who cites other instances. The veiled connection of the dream with the preceding day is noted also by Hacker (*op. cit.*, p. 113), especially in early dreams. Light morning dreams more frequently forecast the usual day's routine.

²⁶ It is natural to suppose that the frequency of dreams of nakedness, exposure, shame, and the like, is due to the preceding preparation for bed. Private and domestic scenes woven into public appearances and social encounters do not fail to offend the dreamer's sense of the proprieties. Perhaps many of the sexual motives cherished by the Freudian proceed from this innocent cause.

spections we found not one of these generalizations to hold.²⁷ Besides the observations made upon each individual dream-record, the observers attempted, at the end of the week, to draw wider distinctions; but most of these distinctions were either qualified by the individual observer or by a comparison of all the reports when thrown together. Whatever is left over for general formulation may be put in the following words. The waking functions least disturbed are the perceptual functions. The chief disturbance to them is referable to breaks in perceptual trains which are provided against, in waking, by the continuity of environmental changes. The sensory materials of perception are, also, as we have seen, more limited and less various than those provided by the active and alert organism. It is strange that the perceptual functions should be so well sustained under circumstances which make it impossible for the organism,—out of touch with its surroundings during sleep,—to profit by them. The disturbance to the central nervous activities seems, however, less to derange those unknown processes which preserve bits of antecedent function than to destroy the synergetic operations of the cerebrum;—the operations which are necessary to balance and control, and which integrate at once racial and habituated sets, determining and associative tendencies, and the immediate effects of external and organic stimuli. The result for consciousness is that thinking is rare and, as a rule, ineffective; that secondary attention is fitful and incidental; and that those wide integrations which are compassed by the human psychophysical organism in its most productive moments are almost entirely wanting.

Our introspective results are indicative rather than constructive. Even when added to the whole mass of antecedent work upon the subject they do not wholly suffice for the foundation of a doctrine of the dream-consciousness. But the method does, when it is taken seriously in hand by the psychologist, yield results. The writer's experience with it leads him to believe that a person thoroughly trained in introspection can, with practice and with definite instructions, reproduce the dream-consciousness with almost photographic fidelity. At the very least, the method is capable of carrying our knowledge a long way beyond the limits of loose generalization. Moreover, it

²⁷ Calkins (1893) came to a like conclusion. The danger of drawing wide inferences from the dreams of a single Obs. appears in S. Meyer (*Zeitschr. f. Psychol.*, liii, 1909, 206), who argues on the basis of his introspections against the hallucinatory character of the dream.

may, by forming an alliance with the external agencies of bodily control, be carried to a much higher state of specialization than we have yet attempted.

As regards the second, the pedagogical aim of the inquiry, the members of the seminary were quite agreed at the conclusion of the task that the method admirably served our purpose. It compelled us to use psychological terms with a common import, it defined and quickened our powers of observation, and it convinced us that the dream-consciousness, cut off as it is from the confused interests and demands of our daylight lives, is adapted in a unique and special way to introspective examination.